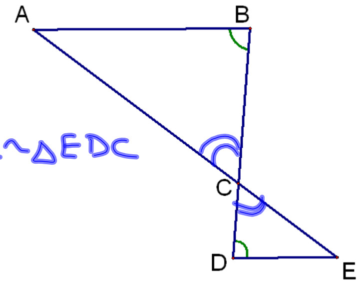
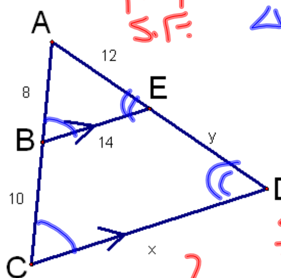
6-3 Similar Triangles

Postulate 6.1—AA~ Postulate—If 2 ∠s of 1 Δ are ≅ to 2 ∠s of another Δ. Then the Δs are similar.



$\triangle ABC \sim \triangle EDC$



4:9 S.F.

$\triangle ABE \sim \triangle ACD$ AA~

$$\frac{AB}{AC} = \frac{BE}{CD} = \frac{AE}{AD}$$

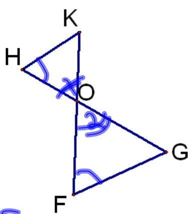
$$\frac{4}{9}\ \cancel{\frac{8}{18}} = \frac{14}{x} = \frac{12}{12+y}$$

$$\frac{4}{9} = \frac{14}{x}$$

$x = 31.5$

$$\frac{4}{9} = \frac{12}{12+y}$$

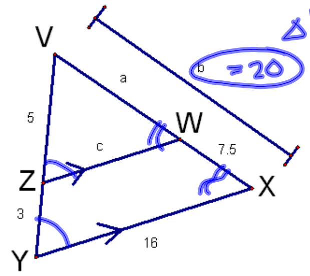
$y = 15$



Given: ∠H ≅ ∠F

Prove: HK· GO = FG · KO

S.	R
①	① Given
② ∠1 ≅ ∠2	② Vert ∠s ≅
③ △HKO ~ △FGO	③ AA~
④ $\frac{HK}{FG} = \frac{KO}{GO}$	④ Corr. sides of ~△s are proportional
⑤ HK·GO = FG·KO	⑤ Cross Mult.



$\triangle VZW \sim \triangle VYX$

AA~

$b = 20$

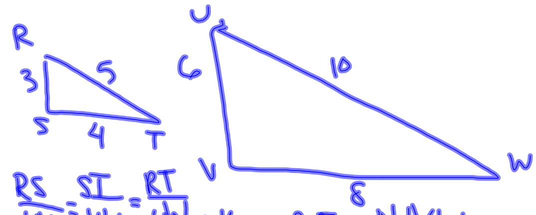
$\frac{VZ}{VY} = \frac{ZW}{YX} = \frac{VW}{VX}$

$\frac{5}{8} = \frac{c}{16} = \frac{a}{a+7.5}$

$\frac{5}{8} = \frac{c}{16}$ $c = 10$

$\frac{5}{8} = \frac{a}{a+7.5}$ $a = 12.5$

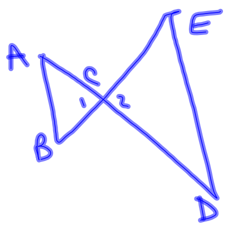
Theorem 6.1—SSS~ Theorem—If the measures of the corresponding sides of 2 $\triangle$s are in proportion, then the $\triangle$s are ~.



If $\frac{RS}{UV} = \frac{ST}{VW} = \frac{RT}{UW}$ then $\triangle RST \sim \triangle UVW$

$\frac{3}{6} = \frac{4}{8} = \frac{5}{10}$ ✓

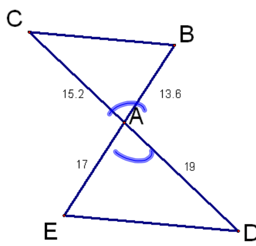
Theorem 6.2—SAS~ Theorem—If the measures of 2 sides of a $\triangle$ are proportional to the corresponding 2 sides of another $\triangle$, and the included $\angle$s are $\cong$, then the $\triangle$s are ~.



If $\frac{AC}{DC} = \frac{BC}{EC}$

& $\angle 1 \cong \angle 2$

then $\triangle ABC \sim \triangle DCE$



Are the triangles similar?

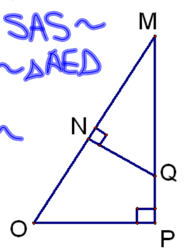
small to small

lg to lg

$\frac{13.6}{17} = \frac{15.2}{19}$ ✓

yes SAS~

$\triangle ABC \sim \triangle AED$

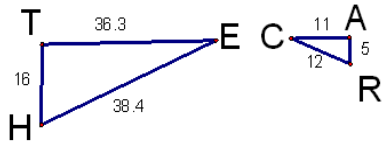


Are the triangles similar? yes AA~

$\triangle MNQ \sim \triangle MPO$

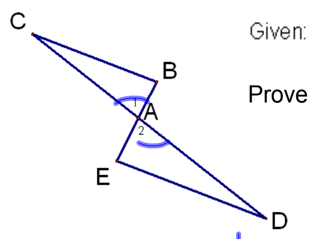
Are the triangles similar?

No



$$\frac{16}{5} = \frac{36.3}{11} = \frac{38.4}{12}$$

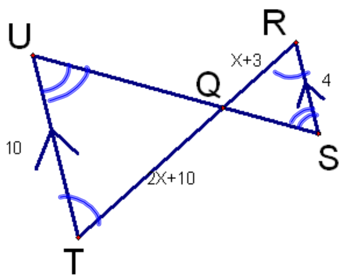
$$3.2 \neq 3.3 \neq 3.2$$

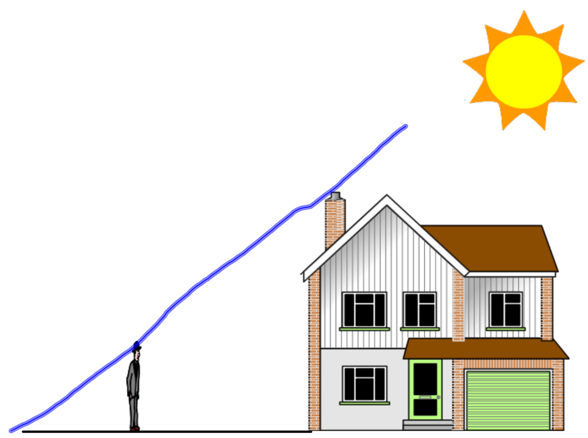


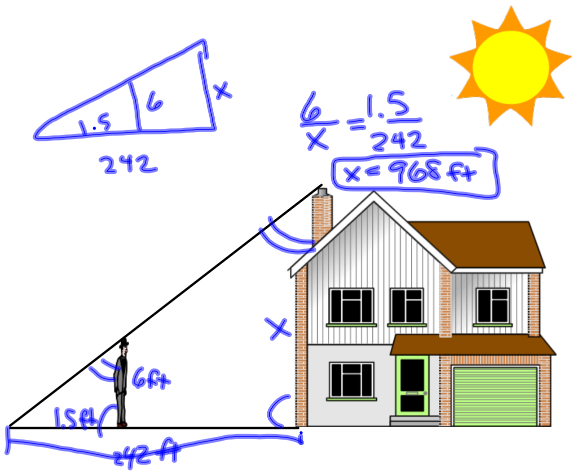
Given: $\frac{AC}{AD} = \frac{BA}{EA}$

Prove: $\angle C \cong \angle D$

1 ~	1 Given
2 $\angle 1 \cong \angle 2$	2 Vert $\angle$s $\cong$
3 $\triangle ABC \sim \triangle AED$	3 SAS~
4 $\angle C \cong \angle D$	4 Corr $\angle$s of ~$\triangle$s are $\cong$







Homework
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